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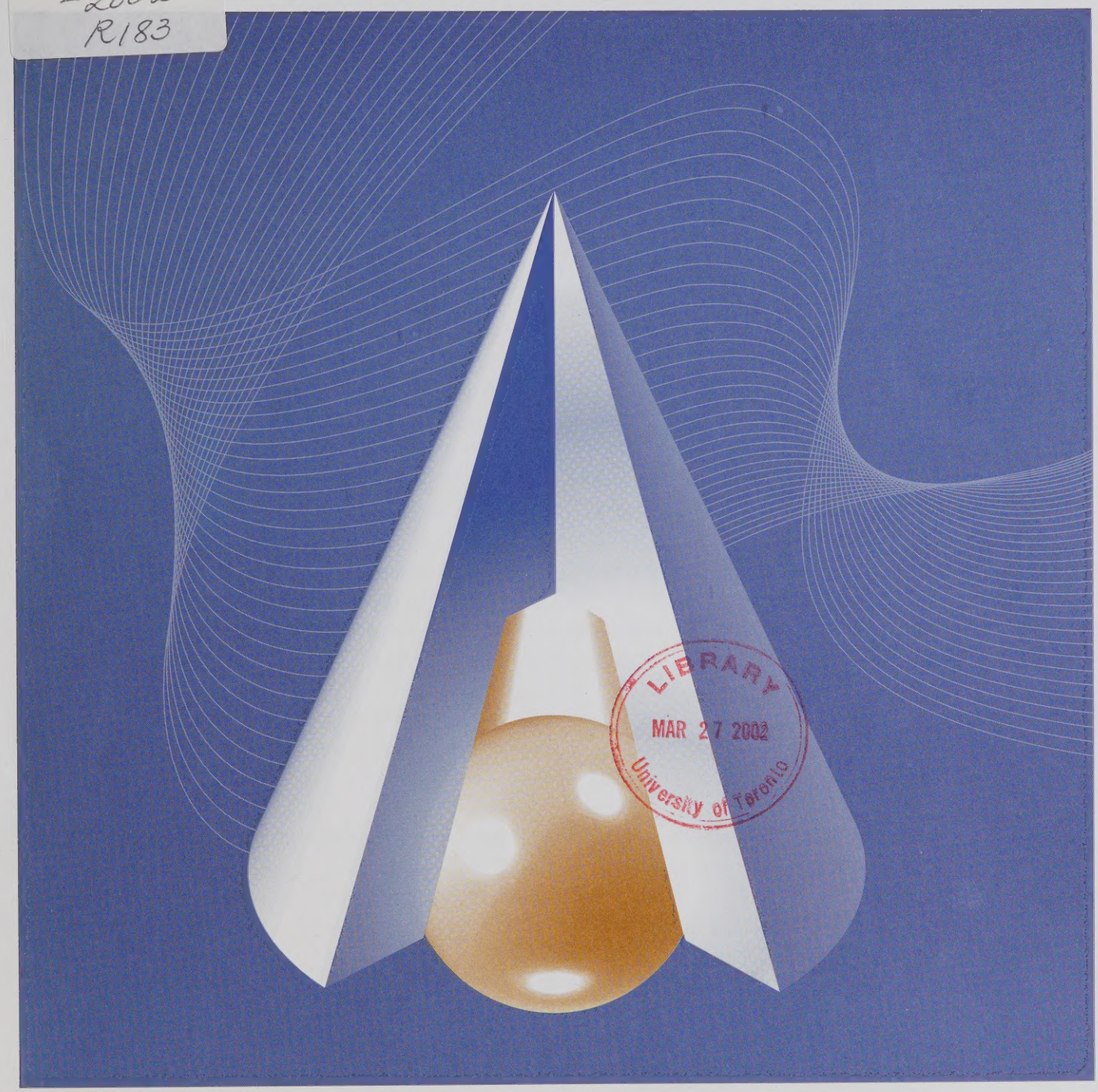
*Setting up Shop: Self-Employment Amongst Canadian College and University Graduates*

**by Ross Finnie, Christine Laporte, Maud-Catherine Rivard**

**No. 183**







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# Setting up Shop: Self-Employment Amongst Canadian College and University Graduates

**by Ross Finnie*, Christine Laporte**, Maud-Catherine Rivard*****

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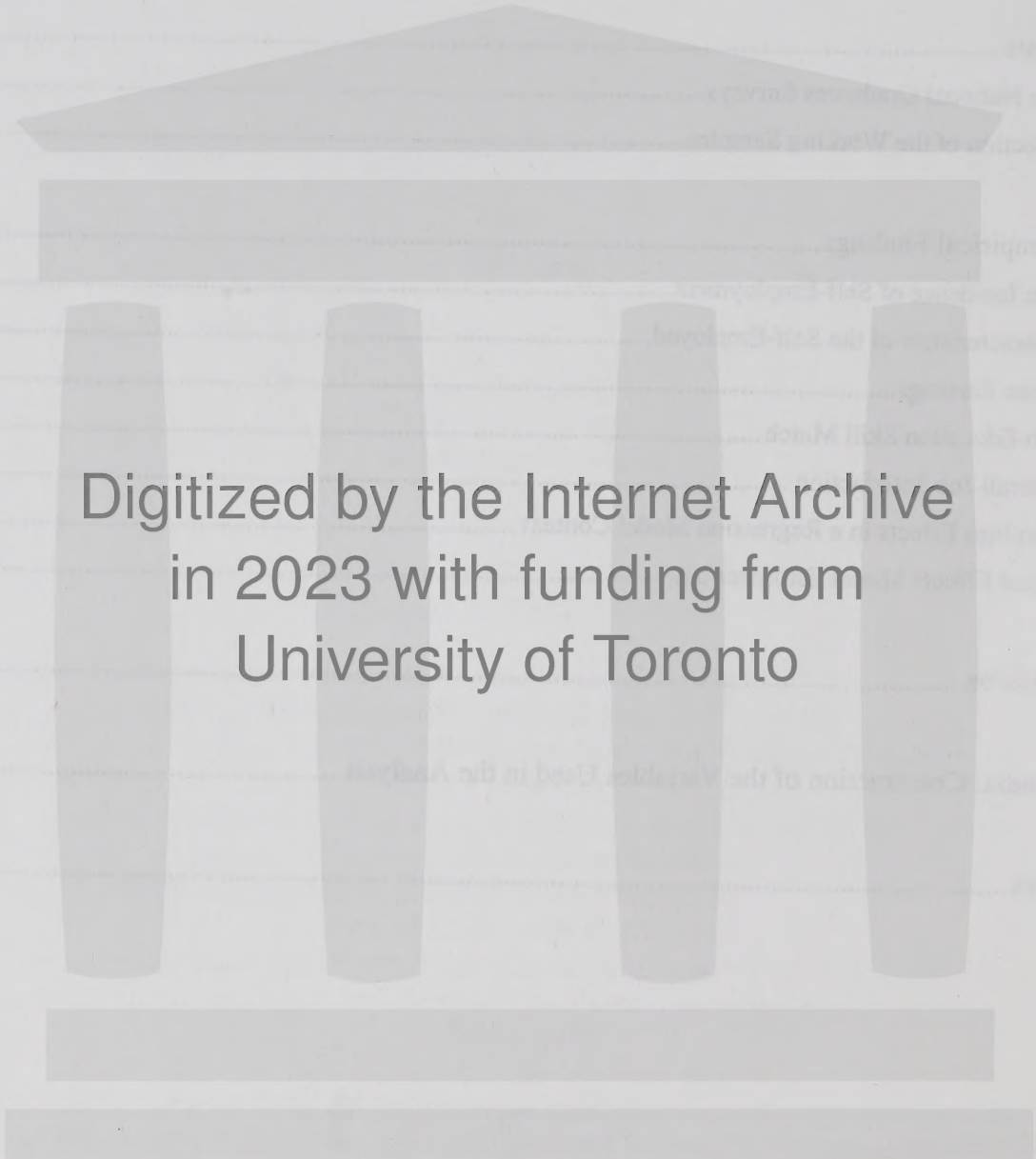
*Aussi disponible en français*

## *Table of Contents*



## *Abstract*

Changes in the labour market such as an increase in the incidence of part-time, part-year work, multiple job holding and self-employment have often been conjectured as demand-driven shifts—that is, that they have resulted from a lack of more traditional job opportunities rather than in response to worker's changing preferences. Yet while the issue of non-standard work is an interesting and important one, there is relatively little existing empirical evidence on the topic.

The general purpose of this paper is to report the results of an empirical analysis that exploits the self-employment status indicator available in the National Graduates Survey (and Follow-Up) databases. It documents and analyses the patterns of self-employment amongst several cohorts of Canadian post-secondary graduates in the first five years following graduation. More specifically, it provides solid empirical documentation of the incidence of self-employment (levels, patterns, trends) amongst recent college and university graduates, overall, and broken down by degree level, sex and year of graduation. This paper also addresses the issue of whether self-employment tends to be the preferred employment option (for those who enter it), or the result of a lack of suitable "conventional" employment opportunities, or some combination of the two.

There are two over-arching conclusions to be drawn from the analysis. First, the incidence of self-employment was relatively stable for the first three cohorts of graduates covered in the analysis. The overall rates ranged from 6.5 to 11.1 percent amongst male graduates and from 3.2 to 6.7 percent for females. The rates tended to be higher for some (but not all) graduates of the most recent cohort (graduates of 1995).

Second, the evidence generally points to self-employment representing a relatively attractive job status on average:

- For every cohort the rates of self-employment rise from the first interview following graduation (after two years) to the second (after five years), an interval over which job opportunities generally improve significantly for graduates;
- Simple point-in-time (cross-sectional) comparisons of earnings, the job-education skill match, and job satisfaction levels suggest that although the results are somewhat mixed, there is little evidence that the self-employment status is generally characterized by less favourable outcomes, and is perhaps particularly marked by generally higher (not lower) overall levels of job satisfaction;
- Finally, both the conventional cross-sectional earnings model and the difference equations which control for various fixed effects with which job status might be correlated, further point to self-employment being a higher-paying (and therefore more attractive) job status than the conventional paid worker status.

**Keywords:** Self-employment, graduates, fixed effects models, National Graduates Survey, earnings, job satisfaction, university, college

# I. Introduction

Labour markets have been changing in some very fundamental ways, including a shift towards more "non-standard" types of work: an increased incidence of part-time, part-year, or other "irregular" work patterns, fewer "permanent" positions, more multiple job holding, and a rise in self-employment. For example, in 2000, 18.1% of the labour force was working part-time compared to 14.4% in 1980 and self-employed workers now comprise to 16.2% of the total labour force, up from 12.6% two decades ago. It is often conjectured that these shifts have been largely demand-driven—that is, that they have resulted from a lack of more traditional job opportunities rather than in response to a change in workers' preferences.

Yet while the issue of non-standard work is an interesting and important one, there is relatively little existing empirical evidence on the topic. The contribution of this paper is to report the results of an empirical analysis that exploits the self-employment status[1] indicator available in the National Graduates Survey (NGS) and Follow-Up databases. It documents and analyses the patterns of self-employment amongst four recent cohorts of Canadian post-secondary (college and university) graduates in the first five years following graduation.

This is perhaps a particularly interesting group to study in terms of self-employment for at least two reasons. First, thanks to their positioning at the margin (entry point) of the labour market, they presumably reflect recent trends and portend those to come more than any study of a more general population of workers would reveal. Second, if new generations of younger workers are facing a general decline in labour market opportunities in the form of being forced into more non-standard work, perhaps initiatives (preventative, remedial, or compensatory) would be warranted to improve the range of job opportunities available, help workers make the best of those which exist, or to at least offer some relief to those facing the consequences of such deterioration.

More specifically, the paper first provides solid empirical documentation of the incidence of self-employment (levels, patterns, trends) amongst recent college and university graduates, overall, and broken down by degree level (College, Bachelor's, Master's, Ph.D.), sex and year of graduation. It then analyses the outcomes of the self-employed versus workers in order to address the issue of whether self-employment tends to be the preferred employment option (for those who enter it), the result of a lack of suitable "conventional" employment opportunities, or some combination of the two.

The analysis makes use of a variety of analytical approaches, ranging from simple tables and relatively standard cross-sectional econometric models to a fuller exploitation of the longitudinal structure of the first three (full) NGS cohorts to compare stayers and movers. Fixed effects earnings models that attempt to separate the effects of the self-employment status per se from the unobserved heterogeneity with which it is likely to be correlated are also used.

There are two over-arching conclusions to be drawn from the analysis. First, the incidence of self-employment was relatively stable for the first three cohorts of graduates covered in the analysis (those who completed their studies in 1982, 1986 and 1990). The overall rates ranged from 6.5 percent to 11.1 percent amongst male graduates and from 3.2 to 6.7 percent for females. The rates

[1] In the National Graduates Surveys, a self-employed worker is defined as "a person who works directly for himself or herself. Self-employed may or may not have a business, a farm or a professional practice."

then tended to be higher for some (but not all) graduates of the most recent cohort (those who graduated in 1995). There is, therefore, some evidence of an upward trend in self-employment of graduates but of a much more recent vintage and weaker force than many might have expected.

Second, the evidence generally points to self-employment representing a relatively attractive job status. This is seen in a number of ways. First, and at the aggregate level, for every cohort the rates of self-employment rise from the first interview following graduation (after two years) to the second (after five years), an interval over which job opportunities generally improve significantly for graduates. Second, simple point-in-time (cross-sectional) comparisons of earnings, the job-education skill match, and job satisfaction levels offer little evidence that the self-employment status is generally characterized by less favourable outcomes and is perhaps particularly marked by generally higher (not lower) overall levels of job satisfaction. Finally, both the conventional cross-sectional earnings model and the difference equations which control for various fixed effects with which job status might be correlated point to self-employment being a higher-paying (and therefore more attractive) job status than the conventional paid worker situation.

The paper is laid out in a straightforward fashion: the next section provides a quick review of the economic theory and empirical evidence, Section 3 offers a description of the National Graduates Surveys databases and the samples used in the analysis; the presentation of the empirical findings then follows; and the concluding section summarizes the major findings and some of their implications.

## *2. Economic Theory and Empirical Evidence*

Being self-employed – as opposed to being a wage or salary worker – could be for one of two broad reasons: not being able to find suitable employment of the more conventional status, or preferring the self-employment status for personal reasons or due to the short-term monetary benefits and/or enhanced longer-term career opportunities which can accrue. Are individuals pushed toward self-employment because of the unavailability of paid work or are they pulled into self-employment because of its comparative advantages? Theoretical predictions and the empirical evidence accumulated to date concerning the link between self-employment and labour market opportunities have been inconclusive.

The economic theory concerning the determinants of self-employment is divided into two schools of thought: recession-push and entrepreneurial-pull. According to the recession-push theory, self-employed workers do not have distinct qualities that differentiate them from paid workers, and are pushed toward self-employment because of the lack of opportunities in the paid labour market. The entrepreneurial-pull theory considers entrepreneurs as individuals with the abilities and the skills to perform in a self-employment job, implying that there should be no significant positive relation between self-employment and unemployment. In fact, this relation could even be negative. Because of the higher risk associated with self-employment compared to paid work, periods of recession and high unemployment may discourage individuals from setting up shop. Empirical evidence consistent with both theories has been found but, in total, is highly inconclusive[2].

[2] For Canadian data, see Schuetze (1998) for the recession-push theory and Whitfield and Wannell (1991) for the entrepreneurial-pull theory.

There has been, however, a renewed interest in this question in Canada over the last few years. Self-employment has largely increased over the 1990s while during the same period, unemployment rates have remained relatively high. A priori, the theory of recession-push seems to apply but Lin, Yates and Picot (1999) found a statistically significant but empirically small negative relationship between self-employment and unemployment at the aggregate level. They conclude that a host of non-cyclical factors may explain the increase in self-employment.

The nature of the NGS data does not allow us to undertake such analysis and to explicitly identify these two specific categories. However, measures of earnings, job satisfaction and overall job evaluation that are included in the NGS permit the analysis of the self-employment status at the individual level in a novel way.

## 3. The Data

The NGS databases employed in this research represent those who successfully completed post-secondary programs in 1982, 1986, 1990, and 1995. For each cohort, information was gathered during interviews carried out two and five years after graduation (only the first interview has been completed for the final set of graduates).

### 3.1 The National Graduates Surveys

The National Graduates Surveys (and Follow-Up) databases, developed by Statistics Canada in partnership with Human Resources Development Canada, are well suited to this analysis for a number of reasons. First, the NGS files are quite large, with each survey including approximately 30,000 college and university graduates, thus facilitating the sort of detailed analysis of post-graduation experiences that general survey database (such as the Survey of Consumer Finances, General Social Survey or Survey of Labour Income Dynamics) cannot, while the representative nature of the databases allows the results to be generalized to the population of graduates at large.[3, 4]

Second, the longitudinal element of the NGS surveys, deriving from the two interviews conducted for each cohort, two and five years following graduation, facilitates a dynamic tracking of the school-to-work transition, with the resulting perspective precisely situated as of these two points in time, while also covering a relatively extended period after leaving school. The longitudinal element also permits a similarly dynamic analysis at the individual level, allowing us to observe the various changes which occur as individuals move from one job status to another, thereby providing another perspective of the effects of the mode of employment *per se* on outcomes (*i.e.*, controlling for individuals' "fixed" characteristics).

Third, the availability of data for four different cohorts permits the more enduring patterns to be separated from those which have been shifting over what is generally thought to have been a period of important labour market changes, especially for younger workers, while also bringing the record as up to date as possible.

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[3] The NGS databases are based on a stratified sampling scheme (by province, level of education and field of study). All results reported below reflect the appropriate sample weights.

[4] The databases also include trade and vocational school graduates, but these individuals are not included in the present analysis because the structure of their educational experiences and post-graduation outcomes is quite different for this group, as is the organization of the data (different questions, *etc.*).

Finally, the NGS files contain a good selection of measures of labour market outcomes—employment status, the job-education skill match, job satisfaction, earnings, *etc.*—thus facilitating a multi-dimensional analysis of the school-to-work transition and early job market outcomes in the context of the self-employment job status and a relatively suitable set of control variables to include in the econometric models employed.

The response rates are generally quite high for a survey of this type, ranging from 74 to 85 percent for the first interview and (except for one outlier) from 81 to 93 percent of these individuals captured again a second time, with these rates effectively representing lower bounds of the "true" response rates relevant to the underlying domain of interest.[5]

### *3.2 Selection of the Working Samples*

This analysis focuses on a relatively tightly defined group of graduates who were moving into the labour market after having completed their studies. Graduates who obtained an additional degree (*i.e.*, subsequent to the one received in 1982, 1986, 1990, or 1995 representing the basis of inclusion into the samples) and part-time workers who cited school as the reason for their only partial involvement in the labour market are excluded from the analysis. This was done on the grounds that many such graduates no longer belonged to the original education group (*e.g.*, Bachelor's graduates became Master's graduates) and had in any event been mixing school and work in a way likely to affect the labour market outcomes upon which this analysis is focused.[6] Including on-going students would also have thrown off the precise post-graduation time frame corresponding to the two interview dates (*i.e.*, two and five years after graduation) which holds for the non-continuing group.

Other part-time workers (i.e., non-students) are included in the analysis, thus lending it a broad labour market base. The few individuals who were other than regular paid workers (family workers, volunteers, *etc.*) were deleted, as were full-time workers with unreasonably low earnings levels (under $5,000 measured on an annual basis), thus selecting out those with only very marginal attachment to the labour force. Finally, observations were dropped on a variable-by-variable basis where the required information was missing.

For the tracking of outcomes at the aggregate level as of two and five years following graduation, these criteria were applied to each interview's observations independently in each period. Where individual-level dynamics are analysed, individuals had to meet the criteria in both years.

## *4. The Empirical Findings*

This section reports the empirical findings, beginning with the simple documentation of the incidence of the self-employment status; moving through the characteristics of the self-employed versus paid workers, including an analysis of various labour market outcomes (earnings, the job-education skill match, job satisfaction); and then probing the related earnings patterns more deeply

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[5] See Finnie (1999, 2001).

[6] An analysis of the 1982 cohort, for which enrolment status as of the interview dates is given in the NGS files (which is not the case for the later cohorts), revealed that most of the part-time workers eliminated by the second part of the restriction were in fact full-time students and, conversely, that most full-time students were eliminated by this condition, precisely as desired.

using both standard cross-sectional econometric models and fixed effects difference equations which exploit the longitudinal element of the data.

### *4.1 The Incidence of Self-Employment*

Table 1 shows that for graduates at all levels taken together, self-employment rates have ranged from 6.5 percent to 7.8 percent for males, and from 3.2 to 5.2 percent for females two years after graduation. Five years out, they range from 9.9 percent to 11.1 percent for males and 5.3 to 6.7 percent for females. Interestingly, the rates have risen uniformly from two to five years following graduation. This is an important and perhaps telling dynamic in a context where employment opportunities have been found to generally improve significantly over this period as reflected in sharp declines in unemployment and movements from part-time work to full-time time positions along with substantial increases in earnings levels (Finnie, 1999, 2001).

**Table 1: Self-Employment Rates**

| | 1982 Cohort | | 1986 Cohort | | 1990 Cohort | | 1995 Cohort |
|---|---|---|---|---|---|---|---|
| | 1984 | 1987 | 1988 | 1991 | 1992 | 1995 | 1997 |
| | % | % | % | % | % | % | % |
| **ALL:** | | | | | | | |
| Male | 6.7 | 9.9 | 6.7 | 10.0 | 6.5 | 11.1 | 7.8 |
| Female | 3.3 | 5.3 | 3.2 | 5.6 | 3.9 | 6.7 | 5.2 |
| **COLLEGE:** | | | | | | | |
| Male | 5.1 | 7.4 | 4.9 | 8.2 | 4.5 | 8.5 | 7.8 |
| Female | 2.4 | 3.5 | 2.1 | 3.6 | 2.7 | 5.2 | 5.2 |
| **BACHELOR'S:** | | | | | | | |
| Male | 7.8 | 11.7 | 7.5 | 10.9 | 7.5 | 12.7 | 7.2 |
| Female | 3.7 | 6.5 | 3.5 | 6.2 | 4.2 | 7.2 | 5.7 |
| **MASTER'S:** | | | | | | | |
| Male | 6.7 | 8.9 | 8.3 | 11.4 | 6.9 | 9.8 | 12.0 |
| Female | 4.8 | 6.8 | 6.7 | 8.7 | 6.2 | 8.4 | 9.7 |
| **DOCTORATE:** | | | | | | | |
| Male | 4.7 | 6.3 | 6.0 | 6.6 | 8.8 | 9.7 | 6.9 |
| Female | 6.5 | 5.9 | 13.2 | 14.2 | 9.0 | 11.6 | 13.3 |

Note: The samples exclude those who obtained a new diploma by the relevant interview, those who did not have a job, and those who were working part-time due to school. Those with annual earnings lower than $5000 (in 1997 constant dollars) and those who were other than regular paid workers (family workers, volunteers,...)

At this aggregate level, then, the evidence supports the "pull" rather than the "push" hypothesis: individuals are drawn towards self-employment when labour market conditions are good, not pushed into it when they are bad.

Along gender lines, rates are generally higher for male graduates than female graduates except at the Ph.D. level, where the opposite holds in all but one period. This reversal at the highest level of education might reflect female graduates' attempts to circumvent discriminatory employment opportunities in a context where setting out on one's own is a more viable option (given the general

strength of the Ph.D. credential). This notion is, however, perhaps challenged by the fact that the gender earnings gap is generally the *smallest* at the doctoral level (see Finnie, 1999, 2001) suggesting that market discrimination is itself less important for such graduates. In any event, the higher incidence of self-employment amongst Ph.D. women is again consistent with it being driven more by (relatively) enhanced opportunities[7].

Apart from this Ph.D. women effect, there is, perhaps surprisingly no clear pattern(s) in self-employment rates by level of study (College, Bachelor's, Master's, Ph.D.).

In terms of the trends over time, there have been no strong, over-arching patterns across cohorts. More specifically, the rates show no discernible trend at all across the first three groups of graduates, including those who entered the labour market in the midst of the prolonged recession that characterized the first part of the 1990s. The incidence of self-employment subsequently increased slightly for the most recent (1995) cohort for all male graduates taken together, but with quite mixed patterns by specific education level (higher rates at the College and Master's level, lower for Bachelor's and Ph.D. graduates). There were, however, greater and more uniform increases amongst the most recent group of female graduates, a dynamic which would be worth following closely once more data become available. These increases of rate might be due to any number of causes such as increased government support for entrepreneurship, different skills being learned at school, or a change in attitudes. Unfortunately, the NGS data do not permit us to identify the causes.

### *4.2 Characteristics of the Self-Employed*

The various parts of Table 2 show self-employment rates by selected demographic and labour market characteristics as well as the distribution of the self-employed by these same variables for the four levels of post-secondary graduates covered in the analysis.

By sex, we again see the higher rates amongst men than women except at the Ph.D. level for the most recent cohort. The rising shares of female graduates in general and their somewhat more pronounced increase in self-employment have combined to drive the female share of the total number of self-employed graduates to around the 50 percent mark at each education level for the most recent sets of graduates (a 53-47 percent split overall, Table 2a, College Graduates), representing a significant increase from earlier periods (a 61-39 percent split in 1984). Now, when we talk of the self-employed amongst post-secondary graduates, we are referring to as many women and men—a clear shift from before.[8]

Given that the data capture individuals at two given points in time following graduation, the age variable principally reflects individuals' ages upon graduation rather than life cycle effects *per se* (*i.e.*, it reflects how rates vary by age once an individual enters the labour market). It is, therefore, perhaps unsurprising that there is a general tendency for self-employment rates to be higher for older graduates. Empirical research on self-employment shows that there is a strong relationship between the likelihood of a person being self-employed and their level of labour market experience (Le, 1999). As an individual aged and acquires more labour market experience, he or she is more likely

[7] Although pure "age effects" are probably also operating as well, with self-employment being generally more common amongst older, more established workers.

[8] See Finnie and Wannell (1999) for a general analysis of labour market outcomes of graduates along gender lines.

to possess the financial resources, the managerial skills and the learning abilities necessary for a successful entrance into self-employment.

The overall shares of the self-employed, on the other hand, tend to reflect the relative population shares of the different age groups by level of education. The ranks of the self-employed are being heavily made up of the younger groups which generally dominate at the College and Bachelor's levels and larger shares of older graduates amongst the populations of Master's and, especially, Ph.D. graduates.

There appear to have been no shifts in the relative rates of self-employment by age group over time. Such shifts might have been anticipated if the labour market had been turning against relatively younger (less experienced) workers in general and these individuals had reacted by turning to the self-employment option. The patterns point more to stability and at most gradual evolution rather than significant change of any general nature.

**Table 2: Share and Distribution of Self-Employed Workers by Selected Characteristics,**

**a) College Graduates**

| | 1982 Cohort | | | | 1986 Cohort | | | | 1990 Cohort | | | | 1995 Cohort | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1984 | | 1987 | | 1988 | | 1991 | | 1992 | | 1995 | | 1997 | |
| | % SE | Dist. of SE | % SE | Dist. of SE | % SE | Dist. of SE | % SE | Dist. of SE | % SE | Dist. of SE | % SE | Dist. of SE | % SE | Dist. of SE |
| | | % | | % | | % | | % | | % | | % | | % |
| **SEX:** | | | | | | | | | | | | | | |
| Male | 5.1 | 61 | 7.4 | 61 | 4.9 | 65 | 8.1 | 65 | 4.5 | 53 | 8.5 | 53 | 7.8 | 53 |
| Female | 2.4 | 39 | 3.5 | 39 | 2.1 | 35 | 3.6 | 35 | 2.7 | 47 | 5.2 | 47 | 5.2 | 47 |
| **AGE:** | | | | | | | | | | | | | | |
| Less than 27 | 2.6 | 60 | 3.8 | 51 | 2.9 | 67 | 4.6 | 44 | 2.8 | 54 | 5.3 | 35 | 5.5 | 51 |
| 27 to 29 | 6.4 | 13 | 7.0 | 23 | 4.6 | 12 | 6.7 | 28 | 3.7 | 11 | 6.7 | 24 | 7.3 | 15 |
| 30 to 34 | 10.1 | 14 | 9.0 | 13 | 2.8 | 5 | 6.2 | 12 | 5.9 | 15 | 7.9 | 17 | 6.5 | 10 |
| 35 and Over | 9.4 | 13 | 10.2 | 13 | 6.2 | 16 | 7.5 | 15 | 4.9 | 20 | 8.2 | 24 | 8.4 | 24 |
| **FIELD OF STUDY:** | | | | | | | | | | | | | | |
| Pure Sc. | 3.0 | 20 | 4.5 | 20 | 2.9 | 18 | 4.2 | 15 | 3.1 | 17 | 7.3 | 22 | 5.6 | 20 |
| Applied Sc. | 3.1 | 21 | 4.2 | 20 | 3.0 | 24 | 6.4 | 31 | 3.1 | 20 | 6.0 | 20 | 4.7 | 17 |
| Engineering | 6.0 | 10 | 11.6 | 11 | 6.4 | 10 | 12.9 | 11 | 8.3 | 10 | 13.4 | 9 | 13.0 | 10 |
| Computer Sc. | 0.5 | 1 | 0.8 | 1 | 1.7 | 2 | 1.0 | 1 | 2.1 | 2 | 3.7 | 2 | 1.3 | 1 |
| Health | 2.7 | 10 | 3.2 | 7 | 2.9 | 13 | 4.7 | 12 | 2.1 | 11 | 5.4 | 15 | 4.7 | 15 |
| SSH | 5.0 | 40 | 7.3 | 40 | 3.7 | 33 | 5.8 | 30 | 4.1 | 38 | 6.6 | 32 | 9.0 | 37 |
| **REGION:** | | | | | | | | | | | | | | |
| Atlantic | 1.8 | 2 | 2.6 | 2 | 0.8 | 1 | 2.6 | 2 | 2.2 | 3 | 3.3 | 3 | 3.6 | 3 |
| Quebec | 2.2 | 16 | 3.0 | 15 | 2.6 | 20 | 4.1 | 18 | 2.2 | 17 | 4.1 | 19 | 4.0 | 13 |
| Ontario | 4.0 | 50 | 5.7 | 53 | 3.7 | 52 | 6.4 | 54 | 3.5 | 36 | 5.9 | 38 | 7.1 | 53 |
| Prairies | 3.9 | 6 | 4.0 | 4 | 2.6 | 4 | 3.9 | 3 | 3.4 | 5 | 6.6 | 5 | 3.5 | 3 |
| Alberta | 5.5 | 17 | 6.1 | 13 | 3.8 | 13 | 6.6 | 14 | 4.7 | 16 | 9.3 | 19 | 7.2 | 14 |
| BC & NWT | 4.9 | 8 | 8.7 | 11 | 5.1 | 11 | 7.0 | 10 | 6.9 | 22 | 8.4 | 16 | 7.1 | 14 |
| **OCCUPATION:** | | | | | | | | | | | | | | |
| Manager | 2.6 | 8 | 5.1 | 15 | 5.5 | 19 | 6.0 | 16 | 5.7 | 20 | 8.7 | 19 | 5.5 | 12 |
| Applied Sc. | 1.6 | 5 | 1.4 | 3 | 1.6 | 6 | 4.1 | 9 | 2.5 | 8 | 4.8 | 8 | 5.6 | 9 |
| Teach., Soc. & Rel | 1.6 | 3 | 1.6 | 2 | 1.7 | 4 | 2.3 | 4 | 1.0 | 3 | 2.1 | 3 | 5.6 | 8 |
| Health & Diag. | 2.0 | 11 | 2.9 | 10 | 2.2 | 13 | 2.5 | 8 | 1.1 | 7 | 0.8 | 3 | 4.3 | 9 |
| Sales, Serv. & Rec | 9.0 | 42 | 12.3 | 38 | 7.0 | 32 | 12.3 | 32 | 6.8 | 33 | 15.5 | 39 | 10.7 | 40 |
| Clerk & Prod. | 3.1 | 31 | 4.8 | 32 | 2.6 | 26 | 5.6 | 30 | 3.4 | 29 | 6.5 | 28 | 4.6 | 22 |
| **INDUSTRY:** | | | | | | | | | | | | | | |
| Primary | 11.0 | 14 | 21.4 | 15 | 11.9 | 13 | 23.4 | 15 | 11.4 | 11 | 19.6 | 11 | 13.2 | 9 |
| Manufact. | 1.1 | 5 | 2.8 | 9 | 1.5 | 7 | 2.8 | 8 | 2.0 | 7 | 5.0 | 10 | 1.8 | 4 |
| Trade | 3.7 | 15 | 6.5 | 17 | 3.5 | 13 | 7.3 | 15 | 3.9 | 13 | 10.4 | 17 | 6.5 | 15 |
| Business Serv. | 5.0 | 23 | 7.3 | 24 | 3.9 | 20 | 8.4 | 28 | 6.9 | 34 | 10.0 | 27 | 10.3 | 30 |
| Health & Social Se | 1.7 | 21 | 1.7 | 15 | 1.6 | 21 | 2.2 | 19 | 1.0 | 13 | 12.0 | 9 | 4.0 | 21 |
| Personnal Serv. | 9.6 | 23 | 15.3 | 20 | 10.7 | 25 | 11.7 | 15 | 8.0 | 22 | 20.2 | 27 | 9.8 | 21 |

Notes: 1. "% SE" refers to the percentage of self-employed individuals in each category.
2. "Dist. of SE" refers to the distribution of self-employed within each category.

*Continued...*

**b) Bachelor's Graduates**

| | 1982 Cohort | | | | 1986 Cohort | | | | 1990 Cohort | | | | 1995 Cohort | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1984 | | 1987 | | 1988 | | 1991 | | 1992 | | 1995 | | 1997 | |
| | % SE | Dist. of SE % | % SE | Dist. of SE % | % SE | Dist. of SE % | % SE | Dist. of SE % | % SE | Dist. of SE % | % SE | Dist. of SE % | % SE | Dist. of SE % |
| **SEX:** | | | | | | | | | | | | | | |
| Male | 7.8 | 67 | 11.7 | 61 | 7.5 | 64 | 10.9 | 59 | 7.5 | 59 | 12.7 | 58 | 7.2 | 47 |
| Female | 3.7 | 33 | 6.5 | 39 | 3.5 | 36 | 6.2 | 41 | 4.2 | 41 | 7.2 | 42 | 5.7 | 53 |
| **AGE:** | | | | | | | | | | | | | | |
| Less than 27 | 4.3 | 45 | 6.1 | 14 | 4.0 | 43 | 5.0 | 9 | 4.5 | 9 | 7.2 | 7 | 5.3 | 44 |
| 27 to 29 | 10.2 | 31 | 8.5 | 46 | 8.6 | 24 | 8.8 | 49 | 7.8 | 49 | 8.1 | 42 | 7.6 | 23 |
| 30 to 34 | 9.3 | 16 | 15.4 | 26 | 7.4 | 14 | 12.4 | 25 | 7.3 | 25 | 13.4 | 31 | 9.0 | 15 |
| 35 and Over | 3.8 | 9 | 7.8 | 14 | 5.5 | 19 | 6.4 | 17 | 6.6 | 17 | 10.4 | 20 | 6.1 | 17 |
| **FIELD OF STUDY:** | | | | | | | | | | | | | | |
| Pure Sc. | 3.1 | 2 | 4.3 | 2 | 1.9 | 1 | 4.4 | 2 | 4.6 | 2 | 3.6 | 1 | 6.4 | 3 |
| Applied Sc. | 9.3 | 8 | 13.5 | 7 | 8.6 | 7 | 10.1 | 6 | 6.7 | 6 | 13.8 | 7 | 6.6 | 5 |
| Engineering | 2.4 | 4 | 4.4 | 4 | 3.4 | 6 | 4.6 | 5 | 4.3 | 5 | 6.7 | 5 | 5.2 | 6 |
| Computer Sc. | 3.1 | 1 | 4.3 | 1 | 3.4 | 3 | 7.8 | 4 | 3.4 | 4 | 6.1 | 2 | 7.3 | 3 |
| Health | 15.4 | 24 | 23.6 | 22 | 10.9 | 19 | 21.1 | 21 | 10.7 | 21 | 20.1 | 17 | 6.8 | 9 |
| SSH | 4.9 | 61 | 7.8 | 63 | 4.9 | 64 | 7.4 | 62 | 5.3 | 62 | 8.9 | 68 | 6.3 | 74 |
| **REGION:** | | | | | | | | | | | | | | |
| Atlantic | 5.9 | 8 | 8.4 | 8 | 2.8 | 4 | 5.2 | 4 | 3.7 | 5 | 5.2 | 4 | 4.5 | 5 |
| Quebec | 5.9 | 31 | 8.6 | 28 | 5.7 | 40 | 8.3 | 35 | 5.4 | 24 | 8.6 | 22 | 6.6 | 34 |
| Ontario | 5.4 | 33 | 8.8 | 38 | 4.9 | 35 | 8.4 | 37 | 5.2 | 40 | 8.8 | 40 | 6.0 | 37 |
| Prairies | 6.5 | 9 | 8.6 | 8 | 4.7 | 7 | 8.9 | 8 | 4.3 | 7 | 8.0 | 6 | 5.7 | 7 |
| Alberta | 5.7 | 10 | 8.6 | 10 | 4.3 | 6 | 8.3 | 8 | 4.9 | 10 | 11.7 | 13 | 5.2 | 7 |
| BC & NWT | 7.5 | 9 | 10.9 | 9 | 6.3 | 8 | 10.2 | 9 | 7.9 | 15 | 13.6 | 15 | 7.3 | 10 |
| **OCCUPATION:** | | | | | | | | | | | | | | |
| Manager | 3.5 | 11 | 5.3 | 13 | 5.6 | 22 | 7.3 | 21 | 5.2 | 21 | 7.4 | 19 | 5.1 | 18 |
| Applied Sc. | 2.5 | 6 | 4.8 | 6 | 3.2 | 8 | 4.4 | 7 | 2.7 | 7 | 6.5 | 7 | 6.6 | 11 |
| Teach., Soc. & Rel | 4.1 | 22 | 7.0 | 28 | 2.8 | 16 | 4.1 | 16 | 2.5 | 16 | 5.8 | 21 | 4.3 | 19 |
| Health & Diag. | 13.9 | 25 | 24.3 | 24 | 9.6 | 20 | 19.1 | 24 | 10.4 | 24 | 21.0 | 20 | 7.8 | 11 |
| Sales, Serv. & Rec | 10.5 | 21 | 14.3 | 19 | 9.9 | 21 | 20.0 | 25 | 13.3 | 25 | 18.4 | 23 | 11.6 | 26 |
| Clerk & Prod. | 6.0 | 14 | 9.0 | 10 | 5.3 | 14 | 6.8 | 8 | 5.3 | 8 | 9.6 | 9 | 5.8 | 13 |
| **INDUSTRY:** | | | | | | | | | | | | | | |
| Primary | 12.9 | 8 | 20.3 | 6 | 13.6 | 6 | 21.1 | 5 | 14.9 | 5 | 25.8 | 6 | 11.2 | 4 |
| Manufact. | 1.7 | 3 | 1.2 | 1 | 2.1 | 4 | 3.6 | 4 | 2.3 | 4 | 3.8 | 4 | 4.2 | 6 |
| Trade | 7.5 | 12 | 10.0 | 9 | 6.4 | 9 | 12.1 | 10 | 6.8 | 10 | 10.2 | 8 | 6.3 | 9 |
| Business Serv. | 9.6 | 32 | 19.8 | 41 | 8.3 | 35 | 14.9 | 38 | 8.2 | 38 | 17.6 | 41 | 10.1 | 40 |
| Health & Social Se | 4.0 | 35 | 5.2 | 30 | 2.5 | 24 | 4.8 | 31 | 3.0 | 31 | 4.9 | 28 | 3.6 | 27 |
| Personnal Serv. | 8.7 | 10 | 16.1 | 12 | 17.6 | 21 | 18.3 | 12 | 13.4 | 12 | 21.8 | 14 | 11.3 | 15 |

Notes:
1. "% SE" refers to the percentage of self-employed individuals in each category.
2. "Dist. of SE" refers to the distribution of self-employed within each category.

*Continued...*

**c) Masters' Graduates**

| | 1982 Cohort | | | | 1986 Cohort | | | | 1990 Cohort | | | | 1995 Cohort | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1984 | | 1987 | | 1988 | | 1991 | | 1992 | | 1995 | | 1997 | |
| | % SE | Dist. of SE | % SE | Dist. of SE | % SE | Dist. of SE | % SE | Dist. of SE | % SE | Dist. of SE | % SE | Dist. of SE | % SE | Dist. of SE |
| | | % | | % | | % | | % | | % | | % | | % |
| **SEX:** | | | | | | | | | | | | | | |
| Male | 6.7 | 66 | 8.9 | 66 | 8.3 | 60 | 11.4 | 62 | 6.9 | 54 | 9.8 | 55 | 12.0 | 52 |
| Female | 4.8 | 34 | 6.8 | 34 | 6.7 | 40 | 8.7 | 38 | 6.2 | 46 | 8.4 | 45 | 9.7 | 48 |
| **AGE:** | | | | | | | | | | | | | | |
| Less than 27 | 6.0 | 9 | 5.1 | 0 | 6.4 | 10 | 10.2 | 1 | 2.3 | 3 | - | 0 | 6.5 | 6 |
| 27 to 29 | 5.7 | 23 | 6.8 | 13 | 5.1 | 15 | 7.5 | 10 | 5.7 | 21 | 4.0 | 4 | 8.7 | 20 |
| 30 to 34 | 6.2 | 31 | 7.9 | 35 | 10.0 | 34 | 11.4 | 39 | 6.5 | 25 | 9.5 | 37 | 11.2 | 25 |
| 35 and Over | 5.8 | 37 | 8.6 | 51 | 7.6 | 40 | 10.0 | 50 | 7.9 | 51 | 9.8 | 59 | 12.7 | 49 |
| **FIELD OF STUDY:** | | | | | | | | | | | | | | |
| Pure Sc. | 2.0 | 1 | 2.8 | 1 | 5.3 | 2 | 5.4 | 2 | 4.9 | 3 | 6.3 | 2 | 4.4 | 1 |
| Applied Sc. | 10.5 | 6 | 6.8 | 3 | 5.7 | 2 | 10.0 | 3 | 5.9 | 4 | 8.1 | 4 | 14.0 | 5 |
| Engineering | 5.1 | 6 | 6.5 | 5 | 4.2 | 5 | 5.9 | 5 | 5.2 | 6 | 7.5 | 6 | 7.3 | 7 |
| Computer Sc. | 5.6 | 1 | 5.6 | 1 | 7.2 | 2 | 5.6 | 1 | 1.5 | 0 | 8.6 | 2 | 7.3 | 1 |
| Health | 13.4 | 16 | 22.6 | 19 | 17.8 | 20 | 25.1 | 23 | 11.6 | 10 | 16.1 | 10 | 16.9 | 14 |
| SSH | 5.3 | 71 | 7.2 | 71 | 6.9 | 70 | 9.1 | 66 | 6.6 | 78 | 9.0 | 77 | 10.8 | 72 |
| **REGION:** | | | | | | | | | | | | | | |
| Atlantic | 2.1 | 3 | 4.3 | 4 | 4.7 | 4 | 6.7 | 5 | 2.7 | 3 | 3.0 | 3 | 7.3 | 5 |
| Quebec | 7.9 | 41 | 9.4 | 37 | 10.2 | 41 | 11.3 | 33 | 6.3 | 28 | 7.4 | 25 | 13.2 | 36 |
| Ontario | 4.4 | 31 | 5.5 | 32 | 5.6 | 31 | 8.4 | 34 | 4.1 | 25 | 7.7 | 35 | 10.0 | 35 |
| Prairies | 5.2 | 5 | 6.8 | 5 | 3.3 | 2 | 5.9 | 3 | 6.7 | 7 | 8.2 | 6 | 8.6 | 5 |
| Alberta | 6.9 | 10 | 7.0 | 8 | 9.4 | 10 | 15.5 | 14 | 13.4 | 18 | 17.3 | 18 | 10.3 | 7 |
| BC & NWT | 7.0 | 10 | 12.3 | 13 | 8.9 | 10 | 15.5 | 12 | 10.8 | 19 | 10.1 | 14 | 12.3 | 12 |
| **OCCUPATION:** | | | | | | | | | | | | | | |
| Manager | 4.5 | 21 | 6.9 | 27 | 7.1 | 27 | 7.3 | 23 | 5.3 | 24 | 7.1 | 26 | 7.4 | 21 |
| Applied Sc. | 4.9 | 11 | 6.7 | 10 | 5.5 | 11 | 8.1 | 12 | 6.2 | 16 | 9.5 | 15 | 9.7 | 15 |
| Teach., Soc. & Rel | 3.4 | 26 | 4.2 | 22 | 4.4 | 23 | 6.0 | 22 | 4.3 | 26 | 5.7 | 23 | 8.4 | 26 |
| Health & Diag. | 15.4 | 16 | 25.2 | 20 | 23.7 | 22 | 33.5 | 27 | 16.1 | 13 | 26.0 | 14 | 21.1 | 15 |
| Sales, Serv. & Rec | 24.2 | 22 | 25.7 | 18 | 18.1 | 13 | 28.2 | 12 | 21.5 | 18 | 29.2 | 18 | 28.0 | 19 |
| Clerk & Prod. | 7.3 | 5 | 9.9 | 4 | 8.4 | 4 | 11.4 | 4 | 5.8 | 3 | 93 | 3 | 10.2 | 4 |
| **INDUSTRY:** | | | | | | | | | | | | | | |
| Primary | 6.3 | 2 | 6.6 | 1 | 15.0 | 3 | 12.4 | 2 | 8.8 | 2 | 11.3 | 2 | 9.1 | 1 |
| Manufact. | 3.7 | 5 | 4.9 | 4 | 5.5 | 5 | 5.2 | 4 | 3.7 | 4 | 5.4 | 4 | 4.4 | 3 |
| Trade | 19.4 | 10 | 18.9 | 6 | 7.4 | 3 | 16.0 | 5 | 15.5 | 5 | 19.9 | 5 | 13.5 | 3 |
| Business Serv. | 13.7 | 34 | 23.3 | 39 | 16.8 | 38 | 23.4 | 38 | 15.2 | 46 | 21.6 | 46 | 18.2 | 40 |
| Health & Social Se | 3.4 | 38 | 4.5 | 38 | 4.9 | 41 | 7.2 | 46 | 3.5 | 33 | 4.8 | 33 | 7.7 | 41 |
| Personnal Serv. | 18.2 | 11 | 25.4 | 11 | 15.6 | 9 | 18.0 | 6 | 15.3 | 10 | 21.9 | 10 | 23.6 | 11 |

Notes: 1. "% SE" refers to the percentage of self-employed individuals in each category.
2. "Dist. of SE" refers to the distribution of self-employed within each category.

*Continued...*

**d) Doctorate Graduates**

| | 1982 Cohort | | | | 1986 Cohort | | | | 1990 Cohort | | | | 1995 Cohort | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1984 | | 1987 | | 1988 | | 1991 | | 1992 | | 1995 | | 1997 | |
| | % SE | Dist. of SE % | % SE | Dist. of SE % | % SE | Dist. of SE % | % SE | Dist. of SE % | % SE | Dist. of SE % | % SE | Dist. of SE % | % SE | Dist. of SE % |
| **SEX:** | | | | | | | | | | | | | | |
| Male | 4.7 | 65 | 6.3 | 73 | 6.0 | 48 | 6.6 | 48 | 8.8 | 65 | 9.7 | 61 | 6.9 | 50 |
| Female | 6.5 | 35 | 5.9 | 27 | 13.2 | 52 | 14.2 | 52 | 9.0 | 35 | 11.6 | 39 | 13.3 | 50 |
| **AGE:** | | | | | | | | | | | | | | |
| Less than 27 | - | - | - | 0 | 70.0 | 34 | - | 0 | - | 7 | - | 0 | 7.7 | 4 |
| 27 to 29 | 0 | - | - | 0 | 8.0 | 7 | 68.9 | 35 | 23.4 | 25 | - | 6 | 14.6 | 4 |
| 30 to 34 | 2.5 | 20 | 1.6 | 8 | 5.1 | 23 | 6.1 | 15 | 4.7 | 19 | 11.2 | 26 | 6.0 | 23 |
| 35 and Over | 8.1 | 80 | 8.3 | 92 | 5.9 | 35 | 6.2 | 50 | 8.2 | 49 | 9.4 | 68 | 10.6 | 69 |
| **FIELD OF STUDY:** | | | | | | | | | | | | | | |
| Pure Sc. | 0.1 | 2 | 1.7 | 4 | 3.2 | 5 | 5.9 | 8 | 16.4 | 5 | 3.6 | 5 | 5.3 | 9 |
| Applied Sc. | 2.4 | 6 | 0 | 0 | 4.5 | 5 | 2.5 | 2 | 22.0 | 7 | 4.4 | 5 | 12.7 | 17 |
| Engineering | 5.1 | 10 | 5.7 | 9 | 6.6 | 7 | 7.0 | 7 | 21.0 | 8 | 7.7 | 10 | 4.0 | 7 |
| Computer Sc. | - | - | - | 0 | - | - | - | - | - | 2 | - | 1 | - | 4 |
| Health | 4.1 | 5 | 12.7 | 13 | 34.8 | 39 | 35.1 | 36 | 33.3 | 39 | 34.9 | 32 | 8.7 | 9 |
| SSH | 7.1 | 76 | 8.0 | 74 | 6.3 | 44 | 7.2 | 47 | 7.6 | 39 | 10.2 | 46 | 10.9 | 54 |
| **REGION:** | | | | | | | | | | | | | | |
| Atlantic | - | - | - | - | 1.8 | 1 | 1.4 | 1 | 7.5 | 5 | 6.4 | 5 | 2.0 | 1 |
| Quebec | 1.9 | 8 | 3.7 | 14 | 21.7 | 55 | 22.6 | 55 | 5.1 | 15 | 4.6 | 12 | 11.7 | 31 |
| Ontario | 5.2 | 49 | 6.9 | 64 | 4.4 | 25 | 5.3 | 26 | 10.3 | 44 | 12.1 | 49 | 7.5 | 34 |
| Prairies | 10.7 | 14 | 7.7 | 10 | 2.8 | 2 | 2.5 | 2 | 5.3 | 3 | 4.7 | 3 | 11.2 | 8 |
| Alberta | 7.0 | 19 | 3.1 | 6 | 8.2 | 8 | 7.7 | 8 | 14.2 | 17 | 14.2 | 16 | 8.7 | 11 |
| BC & NWT | 7.9 | 10 | 4.5 | 6 | 9.3 | 9 | 7.6 | 8 | 14.6 | 16 | 14.1 | 16 | 10.6 | 15 |
| **OCCUPATION:** | | | | | | | | | | | | | | |
| Manager | 13.6 | 27 | 13.5 | 34 | 7.6 | 7 | 5.9 | 7 | 9.1 | 9 | 10.0 | 12 | 16.0 | 18 |
| Applied Sc. | 2.8 | 12 | 3.0 | 9 | 4.7 | 11 | 5.2 | 10 | 6.6 | 17 | 6.4 | 14 | 8.4 | 23 |
| Teach., Soc. & Rel | 3.8 | 43 | 3.5 | 34 | 4.9 | 36 | 5.2 | 35 | 4.2 | 27 | 6.2 | 33 | 4.7 | 29 |
| Health & Diag. | 3.1 | 2 | - | 7 | 46.8 | 39 | 55.1 | 38 | 49.2 | 40 | 50.7 | 34 | 27.3 | 18 |
| Sales, Serv. & Rec | 26.8 | 9 | - | 14 | - | 1 | - | 5 | - | 5 | - | 7 | 43.4 | 11 |
| Clerk & Prod. | 16.7 | 6 | - | 3 | - | 6 | - | 4 | - | 1 | - | 1 | - | 1 |
| **INDUSTRY:** | | | | | | | | | | | | | | |
| Primary | - | - | - | 0 | - | 2 | - | - | - | 1 | - | 1 | - | 6 |
| Manufact. | - | 12 | - | 6 | 0 | 0 | 0 | - | 4.4 | 2 | 7.3 | 4 | 2.4 | 2 |
| Trade | - | 6 | - | 0 | - | 1 | - | 1 | - | 1 | - | 0 | - | 1 |
| Business Serv. | 20.2 | 38 | 26.6 | 42 | 32.1 | 34 | 34.2 | 37 | 21.3 | 25 | 20.5 | 21 | 24.0 | 42 |
| Health & Social Se | 2.4 | 38 | 3.7 | 49 | 6.1 | 60 | 6.6 | 57 | 7.3 | 67 | 9.1 | 69 | 5.4 | 43 |
| Personnal Serv. | 13.2 | 6 | 9.5 | 3 | 13.8 | 3 | 14.5 | 4 | 20.1 | 3 | 32.1 | 4 | 28.6 | 6 |

Notes:
1. "% SE" refers to the percentage of self-employed individuals in each category.
2. "Dist. of SE" refers to the distribution of self-employed within each category.

By field of study, rates of self-employment tend to be highest amongst health graduates (including doctors) at the university level, reflecting the employment status which is standard for many of these graduates. Applied science graduates are also characterized by relatively high rates in certain years for certain education groups, but the tendency is generally weaker and the results appear to be more subject to the random fluctuations which would be expected for these (and other) smaller groups of graduates. The majority of the self-employed are, in any event, made up of the SSH (social sciences, the humanities, *etc.*) group which generally dominates the population of graduates at all levels.

Along regional lines, one clear pattern emerges. Atlantic Canada is characterized by typically lower rates of self-employment than elsewhere in the country while the higher-than-average jurisdictions tend to vary by year and education group—the western province sometimes having the highest rates, Quebec and Ontario holding that honour in other cases. It would certainly be interesting to probe this particular dimension of the self-employment option in greater detail, including the analysis of programs aimed at helping younger people get established in their own businesses across the country. But the results again lend to the weight of evidence suggesting that at least a large number of the self-employed are in that status by choice. That is, rates are lowest in the Atlantic provinces where employment opportunities are generally the weakest in the land. If self-employment were generally a sort of "employment status of last resort", we would presumably expect higher, not lower, rates there[9].

The patterns by occupation are perhaps not surprising, particularly as the higher rates tend to be for the sales, service, and recreation sector which would, by definition, be the domain of the self-employed, as well as reflecting the health-related patterns driven by the medical professions noted above. It is perhaps similarly difficult to attach much significance to the patterns by industry.

### *4.3 Mean Earnings*

One important summary measure of the self-employment status is the associated earnings levels. These are shown on a cross-sectional basis by sex and level of education in Table 3 along with the earnings of those in regular paid positions. The earnings measure (in constant 1997 dollars) available in the first six NGS databases (1984 through 1995) represents what the individual reported he or she would earn on an annual basis were the current job (at the time of the interview) to last the whole year, regardless of the *actual* work pattern (*i.e.*, number of weeks worked). For the final interview (1997), however, individuals were asked to report their rate of pay in the manner they preferred (hourly, daily, weekly, *etc.*), along with the usual hours of work, from which an annual measure was constructed (see also the Appendix). While the two measures are conceptually similar and might even be expected to give comparable amounts in many cases, in practice the resulting distributions of earnings are sure to vary (and are in fact empirically revealed to do so), meaning that direct comparisons of the earlier periods with the last one should be made with caution[10].

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[9] Throughout this discussion, it should be kept in mind that post-secondary graduates are generally a privileged group in terms of employment opportunities relative to those with lower levels of education (Finnie, 1999), and that the "push-pull" effects discussed here might operate differently within and between these different sets of workers.

[10] Since self-employment tends to be more volatile than paid work with periods between contracts and low earnings associated with business slowdowns, a wage projection over the entire year is likely to overestimate self-employment earnings relative to paid work.

**Table 3: Mean Earnings by Type of Worker**

| | 1982 Cohort | | | | 1986 Cohort | | | | 1990 Cohort | | | | 1995 Cohort | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1984 | | 1987 | | 1988 | | 1991 | | 1992 | | 1995 | | 1997 | |
| | P | S | P | S | P | S | P | S | P | S | P | S | P | S |
| | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ | $ |
| **ALL:** | | | | | | | | | | | | | | |
| Male | 36600 | 54000 | 43700 | 68900 | 36600 | 57400 | 43000 | 60600 | 36300 | 47200 | 43000 | 53900 | 31300 | 34200 |
| | (72) | (748) | (80) | (711) | (68) | (744) | (66) | (597) | (71) | (626) | (78) | (534) | (76) | (439) |
| Female | 31200 | 34000 | 35300 | 50600 | 32400 | 45500 | 36900 | 48200 | 33300 | 45300 | 37400 | 44300 | 26300 | 29000 |
| | (58) | (659) | (59) | (854) | (57) | (1011) | (53) | (751) | (60) | (822) | (59) | (608) | (59) | (450) |
| **COLLEGE:** | | | | | | | | | | | | | | |
| Male | 30200 | 41100 | 36940 | 50300 | 30700 | 46100 | 36900 | 49300 | 30600 | 31000 | 36500 | 35200 | 26300 | 28200 |
| | (90) | (1268) | (103) | (1089) | (87) | (1160) | (82) | (1098) | (90) | (878) | (100) | (647) | (103) | (651) |
| Female | 25700 | 28200 | 28800 | 44700 | 26900 | 27900 | 30200 | 31600 | 27900 | 34600 | 30600 | 29200 | 20600 | 19300 |
| | (69) | (946) | (67) | (1676) | (77) | (1109) | (66) | (894) | (88) | (1686) | (75) | (628) | (72) | (512) |
| **BACHELOR'S:** | | | | | | | | | | | | | | |
| Male | 37300 | 57000 | 45000 | 74700 | 37500 | 59400 | 44000 | 61900 | 36100 | 48200 | 43100 | 57900 | 31900 | 33300 |
| | (92) | (936) | (106) | (920) | (89) | (1005) | (86) | (761) | (88) | (753) | (97) | (679) | (100) | (509) |
| Female | 33700 | 34100 | 38300 | 52900 | 34200 | 50600 | 39500 | 51600 | 34200 | 45900 | 39000 | 47300 | 27500 | 28600 |
| | (77) | (810) | (76) | (1058) | (72) | (1416) | (65) | (966) | (73) | (1000) | (73) | (785) | (75) | (487) |
| **BACHELOR'S (Excluding Physicians and Lawyers):** | | | | | | | | | | | | | | |
| Male | 37000 | 42800 | 44500 | 55100 | 36900 | 47900 | 43200 | 44800 | 35500 | 42000 | 42200 | 49500 | 31900 | 33300 |
| | (92) | (751) | (106) | (975) | (85) | (978) | (82) | (650) | (87) | (731) | (90) | (658) | (100) | (509) |
| Female | 33500 | 28400 | 37900 | 35700 | 33800 | 39000 | 39100 | 37200 | 34000 | 35000 | 38400 | 36000 | 27500 | 28600 |
| | (78) | (669) | (75) | (817) | (71) | (1218) | (64) | (821) | (74) | (824) | (67) | (585) | (75) | (487) |
| **MASTER'S:** | | | | | | | | | | | | | | |
| Male | 52300 | 65600 | 57700 | 78600 | 51400 | 71800 | 55900 | 76600 | 51300 | 65500 | 57700 | 65100 | 46300 | 55300 |
| | (244) | (2575) | (264) | (2216) | (262) | (2980) | (262) | (1683) | (271) | (2320) | (297) | (1859) | (337) | (1955) |
| Female | 45900 | 46100 | 49700 | 48900 | 46500 | 53700 | 49800 | 57800 | 47200 | 55300 | 51500 | 59700 | 41400 | 53800 |
| | (265) | (2727) | (277) | (2595) | (253) | (2941) | (244) | (2497) | (216) | (2422) | (228) | (2197) | (282) | (2277) |
| **DOCTORATE:** | | | | | | | | | | | | | | |
| Male | 51200 | - | 56800 | - | 49600 | - | 55000 | 74200 | 49300 | 68200 | 56500 | 74200 | 43500 | 43300 |
| | (612) | | (693) | | (588) | | (598) | (4586) | (494) | (3823) | (476) | (3905) | (572) | (3247) |
| Female | 48300 | - | 50900 | - | 47400 | 58000 | 52900 | 64400 | 49500 | 68100 | 54600 | - | 42800 | 59100 |
| | (951) | | (872) | | (817) | (4026) | (851) | (4702) | (822) | (5407) | (717) | | (855) | (4091) |

Notes:

1. *P* indicates paid-workers and *S* self-employed workers.
2. Sample includes individuals working full-time for reasonable earnings (see text for further details).
3. Standard errors shown in parentheses.
4. Details on the earnings measure are provided in the Appendix.

The earnings measure is also somewhat ambiguous with respect to what it represents in the case of self-employed workers, since no instructions were provided with respect to how gross versus net amounts should be reported, with the potential tax advantages available to the self-employed further complicating the issue.

Two sets of results are shown for Bachelor's graduates': including and excluding doctors and lawyers, as these groups tend to have both high rates of self-employment and (especially for the former) high earnings levels.[11] Other underlying differences are controlled for in the econometric models presented below, but these means give a useful broad perspective of the relevant overall patterns.

The results portray a situation where the earnings levels of the self-employed are generally—although not uniformly—higher than those of their more conventionally remunerated counterparts, and in many cases the differences are quite large. This finding holds at all education levels, and with doctors and lawyers both included and excluded amongst male Bachelor's graduates, but generally not as uniformly amongst women, especially for the Bachelor's graduates when the doctors and lawyers are omitted.

Furthermore, Table 3b shows earnings patterns according to individuals' job status in the *two* periods. It indicates that changing from a paid job to self-employment ("Paid-Self") typically results in an increase in earnings: that is, earnings growth (the "Mean Diff." columns) tends to be greater for these individuals than those who make the reverse switch or who remain in paid work both periods[12].

[11] This was also done for graduates at other levels, but the two different sets of results (with and without doctors and lawyers) were very similar and so only the results for the more inclusive groups are shown here.

[12] These comparisons of means essentially comprise a rudimentary "fixed effects" approach, the principles of which are discussed more extensively in the context of the related earnings models presented below.

**Table 3b: Change in Earnings by Status ($1997)**

| | 1982 Cohort | | | 1986 Cohort | | | 1990 Cohort | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1984 | 1987 | Mean Diff. | 1988 | 1991 | Mean Diff. | 1992 | 1995 | Mean Diff. |
| **COLLEGE** | | | | | | | | | |
| Paid-Paid | 27900 | 32900 | 5300 | 28700 | 33600 | 5100 | 29600 | 33700 | 4000 |
| Self-Self | 43000 | 56900 | 12600 | 44200 | 57300 | 14000 | 38800 | 35300 | -6000 |
| Self-Paid | 29100 | 31000 | - | 29200 | 31500 | 0 | 25300 | 30400 | 6400 |
| Paid-Self | 27100 | 39600 | 12300 | 30900 | 38100 | 7900 | 26500 | 32800 | 5900 |
| **BACHELOR'S** | | | | | | | | | |
| Paid-Paid | 36500 | 42300 | 6400 | 36200 | 41900 | 6400 | 36100 | 41000 | 5600 |
| Self-Self | 36300 | 59200 | 20200 | 50400 | 51400 | 6300 | 40000 | 50700 | 14100 |
| Self-Paid | 38800 | 40600 | 2900 | 36300 | 40700 | 8300 | 40900 | 38000 | -5500 |
| Paid-Self | 33300 | 43100 | 11600 | 34200 | 44200 | 10400 | 36800 | 46200 | 12600 |
| **MASTER'S** | | | | | | | | | |
| Paid-Paid | 50800 | 55700 | 5100 | 49600 | 54800 | 6900 | 50600 | 56100 | 5300 |
| Self-Self | 64300 | 73800 | 8800 | 74700 | 73200 | 2900 | 65300 | 73700 | 13300 |
| Self-Paid | 55400 | 45700 | - | 59800 | 56600 | -1800 | 61800 | 56700 | -1600 |
| Paid-Self | 54700 | 76000 | 21000 | 57400 | 72300 | 13100 | 48400 | 56600 | 5400 |
| **DOCTORATE** | | | | | | | | | |
| Paid-Paid | 51400 | 56300 | 4800 | 49600 | 55300 | 6000 | 50600 | 56300 | 5800 |
| Self-Self | - | - | - | - | 70000 | - | 77000 | 76000 | 2200 |
| Self-Paid | - | - | - | - | - | - | - | - | - |
| Paid-Self | - | - | - | - | - | - | 50100 | - | - |

Note: Dashes indicate too few observations to report.

Thus, despite the difficulties associated with interpreting these findings, they generally again go against any notion that self-employment is a generally disadvantaged job status, as the results point to the reverse being true, at least in the case of the recent post-secondary graduates being studied here. There has, furthermore, been no clear movement in this direction (*i.e.*, a deterioration in the situation of the self-employed) over time.

## *4.4 Job-Education Skill Match*

The job-education skill match measure employed here represents an index of the extent to which an individual was using the skills learned during the education program in the current job (see the Appendix)[13].

[13] Unfortunately, the relevant question was not asked of the self-employed in 1984 or 1997.

**Table 4: Job Education-Skill Match by Type of Worker**

| | 1982 Cohort | | | | 1986 Cohort | | | | 1990 Cohort | | | | 1995 Cohort | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1984 | | 1987 | | 1988 | | 1991 | | 1992 | | 1995 | | 1997 | |
| | P | S | P | S | P | S | P | S | P | S | P | S | P | S |
| | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **ALL:** | | | | | | | | | | | | | | |
| Male | 81 | N/A | 86 | 88 | 84 | 85[a] | 87 | 87 | 71 | 72 | 70 | 73 | 65 | N/A |
| Female | 84 | N/A | 87 | 90 | 86 | 86[a] | 87 | 85[a] | 74 | 80 | 73 | 76 | 66 | N/A |
| **COLLEGE:** | | | | | | | | | | | | | | |
| Male | 77 | N/A | 82 | 80[a] | 83 | 80 | 86 | 85 | 70 | 73[a] | 69 | 70 | 65 | N/A |
| Female | 86 | N/A | 88 | 86[a] | 88 | 84 | 88 | 85 | 77 | 80[a] | 75 | 72 | 67 | N/A |
| **BACHELOR'S:** | | | | | | | | | | | | | | |
| Male | 82 | N/A | 86 | 90 | 83 | 86 | 86 | 86 | 69 | 71 | 69 | 74 | 64 | N/A |
| Female | 82 | N/A | 86 | 91 | 84 | 85 | 85 | 84 | 71 | 78 | 71 | 78 | 63 | N/A |
| **MASTER'S:** | | | | | | | | | | | | | | |
| Male | 90 | N/A | 92 | 94[a] | 91 | 93[a] | 93 | 92[a] | 78 | 74[a] | 77 | 76[a] | 73 | N/A |
| Female | 90 | N/A | 93 | 92[a] | 92 | 95[a] | 94 | 94[a] | 81 | 81[a] | 80 | 78[a] | 77 | N/A |
| **DOCTORATE:** | | | | | | | | | | | | | | |
| Male | - | N/A | 98 | - | 96 | 90 | 97 | 95[b] | 90 | 90[b] | 89 | 82[b] | 84 | N/A |
| Female | - | N/A | 98 | - | 95 | 100[c] | 97 | 100 | 90 | 94[a] | 89 | 90[b] | 86[a] | N/A |

Notes:

1. *P* indicates paid-workers and *S* self-employed workers.
2. The means with no letter superscript have standard errors below 1, those with an *a* superscript have standard errors between 1 and 2, those with a *b* have standard errors between 2 and 3, and those with a *c* standard errors greater than 3.
3. Dashes indicate cells with too few observations to report.
4. N/A indicates self-employed workers were not covered by job education-skill match question during this period.
5. A detailed description of how the job education-skill match index was constructed is provided in the Appendix.

While the differences in the indices between the two different groups of workers are generally not very large, almost three times as many of the more significant cases (*e.g.*, a difference of at least three points) "favour" the self-employed than *vice versa*. Once again there is no clear shift in this pattern over time. Furthermore, the results in Table 4b (analogous to Table 3b in the case of earnings), show a comparable set of advantages for those who move into self-employment status from a regular paid position in the majority of cases which can be reported. In short, then, the findings point to self-employment offering at least as many opportunities for individuals to employ the talents they learned in their post-secondary educational programs as regular paid positions, which should presumably again be interpreted as representing a positive attribute of the self-employment status.

**Table 4b: Change in Job Education-Skill Match Index by Status**

| | 1982 Cohort | | | 1986 Cohort | | | 1990 Cohort | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1984 | 1987 | Mean Diff. | 1988 | 1991 | Mean Diff. | 1992 | 1995 | Mean Diff. |
| | % | % | % | % | % | % | % | % | % |
| **COLLEGE** | | | | | | | | | |
| Paid-Paid | 84 | 87 | 3 | 87 | 88 | 1 | 77 | 74 | -3 |
| Self-Self | - | - | - | 87 [b] | 89 [b] | 2 [b] | 80 [c] | 79 [b] | -1 [b] |
| Self-Paid | - | - | - | 80 [c] | 71 [c] | -9 [c] | 75 [c] | 64 [c] | -11 [c] |
| Paid-Self | 76 [c] | 81 [c] | 4 [c] | 86 [b] | 87 [b] | 0 [b] | 67 [b] | 66 [b] | -1 [c] |
| **BACHELOR'S** | | | | | | | | | |
| Paid-Paid | 84 | 87 | 3 | 86 | 87 | 1 | 73 | 71 | -1 |
| Self-Self | - | - | - | 87 [b] | 89 [b] | 2 [b] | 78 [b] | 78 [b] | 0 [b] |
| Self-Paid | - | - | - | 83 [c] | 87 [c] | 4 [c] | 72 [c] | 67 [c] | -5 [c] |
| Paid-Self | 83 [b] | 93 [a] | 10 [b] | 80 [b] | 84 [b] | 4 [b] | 73 [a] | 75 [a] | 2 [b] |
| **MASTER'S** | | | | | | | | | |
| Paid-Paid | 87 | 94 | 3 | 92 | 94 | 2 | 81 | 79 | -2 |
| Self-Self | - | - | - | 95 [b] | 94 [a] | -1 [b] | 80 [b] | 81 [a] | 1 [a] |
| Self-Paid | - | - | - | 91 [c] | 88 [c] | -3 [c] | 80 [c] | 76 [c] | -3 [c] |
| Paid-Self | 87 [c] | 88 [c] | 1 [c] | 88 [b] | 92 [b] | 4 [b] | 69 [b] | 76 [b] | 7 [b] |
| **DOCTORATE** | | | | | | | | | |
| Paid-Paid | 95 | 99 | 3 [a] | 95 | 97 | 2 | 90 | 90 | 0 |
| Self-Self | - | - | - | 100 | 100 | 0 | 93 [a] | 91 [b] | -2 [a] |
| Self-Paid | - | - | - | - | - | - | 85 [c] | 83 [c] | -2 [c] |
| Paid-Self | - | - | - | - | - | - | 88 [c] | 78 [c] | -10 [c] |

Notes:

1. The means with no letter superscript have standard errors below 1, those with an *a* superscript have standard errors between 1 and 2, those with a *b* have standard errors between 2 and 3, and those with a *c* have standard errors greater than 3.
2. *Mean diff.* refers to the mean difference between the second and first interview job education-skill match index levels.
3. Dashes indicate too few observations to report.

## *4.5 Overall Job Satisfaction*

The NGS databases contain information regarding the individuals' overall evaluation of the current job. Based on the responses to a direct question on overall job satisfaction (as described in the Appendix), this information is again self-reported and subjective. This is extremely useful with there being no obvious reason to doubt that the indices which have been constructed in this regard represent useful indicators of the overall quality of the jobs held by self-employed versus regular paid employees.

**Table 5: Job Satisfaction Index by Type of Worker**

| | 1982 Cohort | | | | 1986 Cohort | | | | 1990 Cohort | | | | 1995 Cohort | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1984 | | 1987 | | 1988 | | 1991 | | 1992 | | 1995 | | 1997 | |
| | P | S | P | S | P | S | P | S | P | S | P | S | P | S |
| | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **ALL:** | | | | | | | | | | | | | | |
| Male | 77 | N/A | 80 | 88 | 78 | 86 | 80 | 85 | 80 | 86 | 80 | 81 | 78 | N/A |
| Female | 77 | N/A | 78 | 86 | 77 | 85 | 87 | 85[a] | 79 | 86 | 79 | 84 | 77 | N/A |
| **COLLEGE:** | | | | | | | | | | | | | | |
| Male | 74 | N/A | 78 | 84 | 77 | 88 | 79 | 85 | 79 | 86 | 78 | 82 | 77 | N/A |
| Female | 78 | N/A | 77 | 84 | 78 | 82 | 78 | 83 | 80 | 87 | 78 | 86 | 77 | N/A |
| **BACHELOR'S:** | | | | | | | | | | | | | | |
| Male | 78 | N/A | 80 | 89 | 78 | 85 | 80 | 85 | 79 | 85 | 78 | 80 | 79 | N/A |
| Female | 77 | N/A | 79 | 86 | 77 | 84 | 80 | 85 | 78 | 86 | 80 | 83 | 76 | N/A |
| **MASTER'S:** | | | | | | | | | | | | | | |
| Male | 81 | N/A | 82 | 90 | 82 | 86 | 84 | 86 | 83 | 86[a] | 83 | 84 | 80 | N/A |
| Female | 81 | N/A | 81 | 89[a] | 81 | 90 | 82 | 88[a] | 83 | 86[a] | 82 | 82 | 79 | N/A |
| **DOCTORATE:** | | | | | | | | | | | | | | |
| Male | 82 | N/A | 84 | - | 84 | 90 | 85 | 86[b] | 85 | 88[a] | 85 | 83[b] | 82 | N/A |
| Female | 85 | N/A | 85 | - | 83 | 92 | 83[a] | 84[b] | 86 | 95[a] | 85 | 87[b] | 81 | N/A |

Notes:

1. *P* indicates paid-workers and *S* self-employed workers.
2. The means with no letter superscript have standard errors below 1, those with an *a* superscript have standard errors between 1 and 2, those with a *b* have standard errors between 2 and 3, and those with a *c* standard errors greater than 3.
3. Dashes indicate cells with too few observations to report.
4. N/A indicates self-employed workers were not covered by the job satisfaction question during this period.
5. A detailed description of how the job satisfaction index was constructed is provided in the Appendix.

The results shown in Table 5 suggest that job satisfaction has generally been greater amongst the self-employed than for regular paid employees, with this pattern holding at all levels and equally for male and female graduates. As for trends over time, the advantage of the self-employed is not as great in the 1995 data[14]. So it would seem we could not rule out the possibility of there having been a shift in this regard in recent years and only later surveys will be able to cast further light on this issue. The mover-stayer results shown in Table 5b support rather strongly the view that being self-employed tends to lead to greater job satisfaction, with individuals observed to move into such positions typically showing substantial increases in their overall job satisfaction relative to those who remain in paid positions both periods.

[14] We are unfortunately unable to make the desired comparisons for 1997 due to the missing information.

## Table 5b: Change in Job Satisfaction Index by Status

| | 1982 Cohort | | | 1986 Cohort | | | 1990 Cohort | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1984 | 1987 | Mean Diff. | 1988 | 1991 | Mean Diff. | 1992 | 1995 | Mean Diff. |
| | % | % | % | % | % | % | % | % | % |
| **COLLEGE** | | | | | | | | | |
| Paid-Paid | 78 | 78 | 0 | 78 | 79 | 0 | 81 | 78 | -3 |
| Self-Self | - | - | - | 89 [a] | 86 [a] | -3 [b] | 90 [a] | 84 [a] | -6 [a] |
| Self-Paid | - | - | - | 80 [b] | 74 [c] | -6 [c] | 79 [c] | 77 [b] | -1 [c] |
| Paid-Self | 71 [b] | 82 [a] | 11 [b] | 76 [a] | 86 [a] | 9 [a] | 76 [b] | 84 [a] | 9 [b] |
| **BACHELOR'S** | | | | | | | | | |
| Paid-Paid | 78 | 80 | 2 | 78 | 80 | 2 | 81 | 80 | -1 |
| Self-Self | - | - | - | 86 [a] | 85 [a] | 0 [a] | 89 [a] | 84 [a] | -5 [a] |
| Self-Paid | - | - | - | 82 [b] | 83 [b] | 1 [b] | 80 [b] | 83 [b] | 2 [c] |
| Paid-Self | 73 [b] | 90 [a] | 17 [b] | 80 [a] | 85 [a] | 5 [a] | 76 [a] | 83 [a] | 7 [a] |
| **MASTER'S** | | | | | | | | | |
| Paid-Paid | 82 | 82 | 0 | 82 | 83 | 1 | 84 | 83 | -2 |
| Self-Self | - | - | - | 89 [b] | 85 [a] | -3 [a] | 88 [a] | 84 [a] | -3 [a] |
| Self-Paid | - | - | - | 87 [b] | 83 [b] | -4 [c] | 83 [b] | 79 [c] | -4 [c] |
| Paid-Self | 74 | 90 [a] | 19 [c] | 79 [b] | 89 [a] | 10 [b] | 75 [b] | 82 [a] | 7 [b] |
| **DOCTORATE** | | | | | | | | | |
| Paid-Paid | 84 [c] | 85 | 0 [a] | 85 | 85 | 0 | 87 | 85 | -2 |
| Self-Self | - | - | - | 92 [b] | 88 [b] | -5 [b] | 95 [a] | 87 [b] | -7 [a] |
| Self-Paid | - | - | - | - | - | - | 84 [c] | 81 [c] | -2 [c] |
| Paid-Self | - | - | - | - | - | - | 75 [c] | 80 [c] | 5 [c] |

Notes:

1. The means with no letter superscript have standard errors below 1, those with an *a* superscript have standard errors between 1 and 2, those with a *b* have standard errors between 2 and 3, and those with a *c* have standard errors greater than 3.
2. *Mean diff.* refers to the mean difference between the second and first interview job satisfaction levels.
3. Dashes indicate too few observations to report.

## *4.6 Earnings Effects in a Regression Model Context*

In section 4.3, the mean earnings measure showed somewhat mixed results but to some degree tended to favour the self-employed over regular paid employees. One general problem with such simple comparisons, however, is that employment status might be associated with other factors which affect earnings, thus introducing bias into the comparisons. That is, perhaps the self-employed tend to be found in jobs with other characteristics that boost their earnings for reasons that are perhaps largely unrelated to the job status *per se*. We have, for example, already seen that the rates of self-employment are high amongst doctors and lawyers, who also have higher earnings, thus generating a correlation between self-employment and earnings which is due to field of study effects rather than the self-employment status itself.

In this section, we report the results of regression models which estimate the effects of employment status on earnings while controlling for a range of characteristics: field of study, co-op type of program, age (and age squared), marital status, the presence of children, province of residence, and parental education. The results presented in Table 6 show just the coefficient estimates on the key employment status variable, each of these coming from a separate regression[15]. The underlying dependent variable in each case was the log of annual earnings (see the definition of earnings above). The coefficient estimates can be interpreted as representing the average percentage difference (approximately) in earnings for self-employed compared to regular paid workers. The *t*-statistics associated with the coefficient estimates are also shown.

**Table 6: Effect of Self-Employment on Earnings Estimated using "Basic" Model**

| | 1982 Cohort | | 1986 Cohort | | 1990 Cohort | | 1995 Cohort |
|---|---|---|---|---|---|---|---|
| | 1984 | 1987 | 1988 | 1991 | 1992 | 1995 | 1997 |
| **COLLEGE:** | | | | | | | |
| Male | 0.160 ** | 0.225 ** | 0.223 ** | 0.111 ** | -0.004 | -0.119 ** | -0.001 |
| | (4.61) | (7.86) | (7.74) | (4.52) | (0.08) | (3.66) | (-0.02) |
| Female | 0.050 | 0.249 ** | -0.097 * | -0.012 | -0.001 | -0.045 | -0.183 ** |
| | (0.93) | (6.18) | (2.01) | (0.33) | (0.02) | (1.08) | (-3.63) |
| **BACHELOR'S:** | | | | | | | |
| Male | 0.143 ** | 0.162 ** | 0.213 ** | 0.112 ** | 0.112 ** | 0.108 ** | -0.020 |
| | (4.25) | (5.61) | (7.01) | (4.93) | (3.41) | (4.13) | (-0.52) |
| Female | -0.064 | -0.07 | -0.039 | 0.01 | 0.071 | -0.023 | -0.026 |
| | (1.43) | (1.84) | (0.95) | (0.33) | (1.65) | (0.71) | (-0.60) |
| **MASTER'S:** | | | | | | | |
| Male | 0.031 | 0.142 ** | 0.15 ** | 0.131 ** | 0.12 ** | -0.059 * | 0.040 |
| | (0.97) | (4.95) | (4.63) | (4.70) | (3.29) | (2.02) | (0.82) |
| Female | -0.011 | 0.016 | 0.036 | -0.095 * | 0.024 | 0.052 | 0.084 |
| | (0.20) | (0.31) | (0.72) | (2.36) | (0.61) | (1.45) | (1.50) |
| **DOCTORATE:** | | | | | | | |
| Male | -0.161 | 0.214 ** | 0.245 ** | 0.207 ** | 0.153 ** | 0.12 * | 0.023 |
| | (1.96) | (2.87) | (3.14) | (3.01) | (3.23) | (2.55) | (0.29) |
| Female | -0.184 | 0.276 * | 0.118 | 0.143 | 0.109 | 0.022 | 0.222 * |
| | (1.40) | (2.48) | (1.32) | (1.53) | (1.25) | (0.25) | (2.50) |

Notes:

1. Estimated equations include an intercept and control for age, age squarred, married, children, field of study, region of residence, mother's and father's education as well if the education program was of the coop type.
2. *t*-statistics shown in parentheses.
3. One asterisk indicates significance at the .05 confidence level, two asterisks indicate significance at the .01 level.

[15] In total 56 separate models have been estimated, one for each sex-education group for each year.

The results indicate that being self-employed is in many cases associated with higher earnings than being a regular paid worker—these effects being positive and statistically significant in 22 of the 56 regressions, whereas significantly negative effects are seen in just 5 cases and the remaining estimates are not significantly different from zero. The effects are, furthermore, in many cases quite large, the coefficient estimates ranging as high as .276 in the case of female doctorate graduates in 1987, and often over the .20 mark. There are also clear patterns to the findings, with almost all of the significantly negative effects occurring at the College level, and the effects generally favouring self-employed males over females.

In short, while the interpretation of the earnings effects remains somewhat difficult for the reasons mentioned earlier, they again point to the self-employment status being associated with, if anything, positive, not negative earnings effects. At the same time, there is some evidence of a shift in this respect in the more recent periods, with, for example, just three significantly positive coefficients and an equal number of significantly negative ones in the 1995 and 1997 results. The change in the definition and construction of the earnings variable in the latter period, however, makes any extrapolations based on those data in particular problematic.

### *4.7 Fixed Effects Model Estimates*

While the models just presented control for individuals' observed characteristics, it is highly possible that there remain unobserved factors, including fixed individual characteristics, that might be correlated with employment status and earnings. For example, perhaps self-employed workers tend to have greater initiative that would lead them to have higher earnings regardless of their job status. These effects might be captured to at least some degree by the self-employment status indicator and thus bias the associated coefficient estimates in an upward (positive) direction. The bias could, however, also go in the other direction: for example, self-employed workers might typically have a greater preference for non-monetary aspects of their jobs, causing them to trade off earnings for other job attributes as well as the self-employment status *per se*.

One way of resolving this problem in the presence of longitudinal data is to employ one of the standard fixed effects models. In this case, we estimate a first difference specification where the dependent variable is the change in (log) earnings from the first interview to the second. This way, any constant ("fixed" effects) which, by definition operate consistently over time, essentially drop out while the effects of employment status are estimated by observing what happens to individuals' earnings for those who move from self-employment to regular paid work, or vice versa. Other influences which might also affect individuals' changes in earnings over time (and which might be correlated with the key change in job status indicators) are also controlled for through variables included in the level equations as well as indicators of changes in the province of residence and marital status.

**Table 7: Effect of Change in Type of Employment on Earnings using "Fixed-Effects" Model**

| | 1982 Cohort | | | 1986 Cohort | | | 1990 Cohort | | |
|---|---|---|---|---|---|---|---|---|---|
| | SS | SP | PS | SS | SP | PS | SS | SP | PS |
| **COLLEGE** | | | | | | | | | |
| Men | -0.002 | 0.244 ** | 0.042 | 0.015 | -0.172 ** | -0.027 | -0.267 ** | 0.158 * | 0.029 |
| | (0.05) | (3.62) | (1.02) | (0.41) | (3.19) | (0.76) | (4.97) | (2.41) | (0.68) |
| Women | 0.201 ** | -0.006 | 0.268 ** | 0.038 | -0.061 | -0.086 * | -0.225 ** | 0.555 ** | -0.076 |
| | (3.12) | (0.07) | (4.49) | (0.50) | (0.87) | (2.04) | (3.45) | (4.96) | (1.41) |
| **BACHELOR'S** | | | | | | | | | |
| Men | 0.118 ** | -0.281 ** | 0.128 ** | -0.192 ** | -0.091 | 0.139 ** | 0.016 | -0.218 ** | 0.165 ** |
| | (3.29) | (4.70) | (3.51) | (4.97) | (1.69) | (4.98) | (0.41) | (4.32) | (5.45) |
| Women | 0.083 | 0.095 | 0.178 ** | -0.067 | -0.143 * | 0.181 ** | -0.190 ** | -0.042 | 0.035 |
| | (1.47) | (1.14) | (3.96) | (1.19) | (2.10) | (5.06) | (3.60) | (0.59) | (0.92) |
| **MASTER'S** | | | | | | | | | |
| Men | 0.024 | 0.067 | 0.171 ** | -0.118 ** | -0.108 * | -0.037 | 0.058 | -0.032 | -0.023 |
| | (0.83) | (1.24) | (5.00) | (3.75) | (2.49) | (1.28) | (1.50) | (0.57) | (0.66) |
| Women | -0.075 | -0.279 * | 0.175 ** | 0.014 | -0.072 | -0.057 | 0.056 | -0.080 | -0.117 ** |
| | (1.43) | (2.53) | (2.65) | (0.28) | (1.08) | (1.03) | (1.34) | (1.84) | (2.97) |
| **DOCTORATE** | | | | | | | | | |
| Men | 0.177 | 0.507 ** | 0.175 | 0.005 | -0.035 | 0.100 | -0.100 | -0.247 ** | 0.150 * |
| | (1.82) | (3.77) | (1.90) | (0.06) | (0.36) | (0.93) | (1.90) | (3.49) | (2.39) |
| Women | 0.333 ** | N/A | N/A | -0.088 | 0.376 | -0.162 | -0.165 * | -0.005 | 0.123 |
| | (3.07) | N/A | N/A | (0.91) | (1.24) | (0.93) | (1.65) | (0.03) | (0.88) |

Notes:

1. Estimated equations include an intercept and control for age, age squarred, region of residence, presence of children, mother's and father's education, field of study and indicator variables for change in province of residence and in marital status.
2. *SS* indicates was self-employed at the 1st and 2nd interviews, *SP* a transition from self-employment to paid-work and *PS* a move from paid-work to self-employment.
3. *t*-statistics shown in parentheses.
4. One asterisk indicates significance at the .05 confidence level, two asterisks indicates significance at the .01 level.

We again focus on the employment status indicators, especially those indicating the change from paid to self-employment ("PS") or the reverse ("SP"). All coefficient estimates should be interpreted in comparison to the baseline (omitted) group of paid-paid workers[16]. The results are largely consistent with the self-employment status being associated with higher earnings, as 9 of the statistically significant paid-self coefficient estimates are positive and just two are negative. That is, switching from paid work to being self-employed is more commonly associated with an increase in earnings compared to a status of paid employment in both periods. Furthermore, 7 of the self-paid coefficient estimates—the flip side of the same hypothesized dynamic—are significantly negative and 9 of the 23 relevant coefficient estimates take the negative sign (but are not significantly different from zero). But the evidence is also less clear-cut in some ways, since there are also four coefficient estimates that are significantly *positive*.

[16] The "SS" variable captures the difference in the rate of earnings growth for those who are self-employed both periods

## 5. Conclusion

This paper has used the series of National Graduates Survey and Follow-Up databases to investigate the self-employment phenomenon amongst recent Canadian post-secondary graduates. The first important general finding is that self-employment rates were fairly constant across the first three sets of graduates (those who finished their programs in 1982, 1986, and 1990), varying between 6.5 and 11.1 percent for men, and between 3.2 and 6.7 percent for women, but tended to be higher for some (but not all) groups (varying by sex and degree level) in the most recent cohort (1995 graduates). There is, therefore, some evidence of an upward trend, but one that is perhaps much smaller and more recent than many would have thought.

The second major finding is that the evidence regarding employment rates, earnings levels, job satisfaction, and the job-education skill match suggests that the self-employment status appears to be generally associated with enhanced labour market outcomes rather than a limited availability of regular paid positions—that is, "pull" rather than "push" factors. The earnings models which have been estimated provide additional support in this direction, with earnings being generally higher amongst the self-employed than those in more conventional employment situations when other wage-determining factors are controlled for, whether standard cross-sectional models or fixed effect first difference specifications are employed.

Perhaps the simplest and most general implication is that self-employment amongst recent post-secondary graduates is probably not something about which we need to be overly concerned. Rates have not changed a great deal and the associated outcomes tend to be favourable. At the same time, certain very recent shifts in these relationships are (as mentioned) hinted at, so further analysis using alternative data or new waves of the NGS (as they became available) would be in order.

## 6. Appendix: Construction of the Variables Used in the Analysis

**Earnings**: For the first three cohorts, based on the question: "Working your usual number of hours, approximately what would be your annual earnings before taxes and deductions at that job?" Values were converted into 1997 constant dollars and capped at the $147,702 value that represents the lowest cap employed across the various interviews. For 1997, the measure is based on three questions which asked the individual i) to identify the easiest way to report his or her earnings (yearly, monthly, weekly, hourly, or some other basis), ii) to give the actual before tax earnings on the indicated basis, and iii) to report the usual hours of work at the job (the average of the last four weeks if it varies). These results were then used to construct annual totals ($1997, capped). The measure is, then, constructed in a consistent fashion across the first six periods, but is not directly comparable between these and the last period due to the changed construction of the variable in that year.

**The Job-Education Skill Match**: For the first three cohorts (1982, 1986, and 1990 graduates), based on the question: "Do you use any of the skills acquired through the education programme in your job?". To reduce the associated categorical responses to simple scalar indices, for the 1982 and 1986 cohorts the available responses of "no" and "yes" were assigned values of 0 and 100 respectively, while for the 1990 cohort, the values of 0 ("not at all"), 33 1/3 ("very little"), 66 2/3 ("to some extent"), or 100 ("to a great extent") were assigned. For the very last cohort (1995 graduates), the underlying question was: "How closely is your current (main) job related to your degree, certificate, diploma?", with values of 0 ("not related at all"), 50 ("somewhat related"), and 100 ("closely related") assigned. The table reports the mean value of these scores, with higher values indicating a closer job-education skill match. Given these constructions, the measure should be consistent across the first four periods (the two interviews for each of the first two cohorts), for the next two periods (the third cohort), but not between these two different sets or between either of these and the final data point (1997), although the relevant question was, unfortunately, not actually asked of the self-employed in the latter year, nor in 1984.

**Overall Job Satisfaction**: Based on the question "Considering all aspects of your job, how satisfied are you with it?" The response options were similar in all years: "very satisfied", "satisfied", "dissatisfied", "very dissatisfied" in the 1986 and 1990 survey years (1988/91 and 1992/95); and the last two options differing very slightly for the first cohort: "not satisfied", "not at all satisfied". The responses were assigned values from 0 to 100 in the same manner as the job-education skill match variable described above, and the tables report the mean values of these scores, with higher values indicating greater job satisfaction. Again, the relevant question was not asked of the self-employed in 1984 or 1997.

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